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### **LISTING OF CLAIMS**

1-23. (canceled)

24. (previously presented): A method of detecting the presence of antibodies to *M. bovis* and *M. tuberculosis* in a biological sample, said method comprising:

combining said sample with a protein having the amino acid sequence of SEQ ID NO:2 or an antigenic determinant thereof; and  
detecting antibodies bound to said protein.

25. (canceled)

26. (previously presented): The method of Claim 24, wherein said protein is immobilized on a solid support.

27. (previously presented): The method of Claim 26, wherein said solid support is nitrocellulose.

28. (previously presented): The method of Claim 24, wherein said sample comprises one or more of sputum, blood, and serum.

29. (previously presented): The method of Claim 24, wherein said detecting is by a qualitative detection system.

30. (previously presented): The method of Claim 29, wherein said qualitative detection system is a horseradish peroxidase-protein A detection system.

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31. (previously presented): The method of Claim 24, wherein said detecting is by a quantitative detection system.
32. (previously presented): The method of Claim 31, wherein said quantitative detection system is a radioimmunoassay.
33. (previously presented): The method of Claim 24, further comprising:  
combining a control biological sample with said protein; and  
comparing the detection of said binding to the binding of antibodies in the control sample with said protein.
- 34-40. (canceled)
41. (previously presented): A method of detecting the presence of Mycobacterium in a biological sample, said method comprising;  
lysing the cells in said sample;  
combining said lysate with antibodies to a protein having the amino acid sequence of SEQ ID NO:2 or an antigenic determinant thereof; and  
detecting said antibodies bound to protein in said lysate;  
wherein said Mycobacterium is *M. bovis*, *M. tuberculosis*, *M. leprae*, *M. africanum*, *M. microti*, *M. avium*, *M. intracellulare* or *M. scrofulaceum*.
42. (previously presented): The method of Claim 41, wherein said Mycobacterium is *M. bovis*.
43. (previously presented): The method of Claim 41, wherein said lysate is immobilized on a solid support.

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44. (previously presented): The method of Claim 43, wherein said solid support is nitrocellulose.
45. (previously presented): The method of Claim 41, wherein said detecting is by a qualitative detection system.
46. (previously presented): The method of Claim 45, wherein said qualitative detection system is a horseradish peroxidase-protein A detection system.
47. (previously presented): The method of Claim 41, wherein said detecting is by a quantitative detection system.
48. (previously presented): The method of Claim 47, wherein said quantitative detection system is a radioimmunoassay.
49. (previously presented): The method of Claim 41, further comprising:  
culturing a diagnostic sample to produce colonies of bacteria present therein, whereby said culture represents said biological sample.
50. (currently amended): A method of detecting the presence of antibodies to a virulent ~~Mycobacterium~~ Mycobacterium in a biological sample, said method comprising:  
combining said sample with a purified protein of a mycobacterium other than *M. bovis* BCG, wherein said protein is a homologue of the protein of SEQ ID NO:2; is an immunogenic membrane-associated protein of said mycobacterium; and is encoded by DNA which is capable of hybridizing with a DNA probe having the complete sequence represented in SEQ ID NO: 1 under conditions where, on a Southern blot, said probe will identify single 3.25 kb BamHI fragments from *M. bovis* BCG and *M. tuberculosis* H37Rv DNA, but will not hybridize with BamHI-digested DNA from either *M. smegmatis* or *M. vaccae*; and detecting

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an antibody bound to said protein that is homologous to SEQ ID NO:2 and that is obtained from a virulent strain of Mycobacteria.

51. (canceled)

52. (previously presented): The method of Claim 41, wherein said Mycobacterium is *M. tuberculosis*.